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Docket: 0756-1173

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT application of)
Masaaki HIROKI et al.)
Serial No. 08/372,899) Art Unit: 2609
Filed: January 17, 1995) Examiner: L. Lao
For: Electro-Optical Device)

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231, on January 5, 1998.

Rose M. Fichtel
Rose M. Fichtel

REPLY BRIEF

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

The *Examiner's Answer* mailed November 5, 1997 has been received and its contents carefully considered. In view thereof, applicants provide the following response.

In Section 13, in response to applicants' argument that Inaba et al. does not teach a plurality of pulses applied during a scan period, the Examiner states that Inaba et al. teaches the limitation of "a data signal (I) contains a plurality of pulses with a constant pulse applied to a data line during addressing with a scan signal (S1)" with reference to Figures 9 and 10 of Inaba et al. This ignores, however, the important limitations highlighted by underlining in the portion of applicants' brief referred to in the *Answer*. Specifically, the claims clearly recite that the scan signal addresses a TFT for a predetermined period and that a data signal containing a plurality of pulses is supplied

through the TFT during addressing with the scan signal. To the contrary, to the extent that Figures 9 and 10 of Inaba et al. show a plurality of pulses on data line I, these plurality of pulses are not supplied to each of the pixel electrodes through a corresponding thin film transistor while addressing the thin film transistor with the scan signal for a predetermined period. Rather, Figures 9 and 10 of Inaba et al. clearly disclose a single pulse applied during each scan period where the amplitude of that single pulse is varied based on the image to be displayed. Thus, applicants continue to maintain that Inaba et al. does not teach the claimed limitations of the present invention.

The *Answer* next asserts that applicants argue that Inaba et al. does not disclose applying an average voltage of the data pulses to one of the pixel electrodes after a predetermined period on page 8 of the Brief. The Examiner agrees, but asserts that Castleberry teaches this feature of the present invention and refers to Figure 4 and column 6, lines 35-56 thereof. Initially, however, it does not in fact appear that Castleberry discloses such feature in the cited portion. Referring to column 6, lines 35-56, Castleberry discloses that after a certain number of row address times, a correction voltage is applied to the data line so that over an extended period of time, the RMS voltage is a constant value. The present invention, however, does not apply a correction voltage to a data line so that over an extended period of time, an RMS voltage is a constant value. Rather, the present invention simply recites that an average voltage of the plurality of pulses is applied after the predetermined period to display a tone of the image. Therefore, it is respectfully submitted that Castleberry fails to disclose this limitation of the present invention as claimed and thus cannot be used to form the foundation for a case of *prima facie* obviousness.

Furthermore, the *Answer* maintains that the motivation to combine the teachings of Inaba et al., Kanatani et al. and Castleberry can be found in column 3, lines 29-43 of Castleberry. Specifically, the *Answer* asserts that such motivation is the desire to eliminate crosstalk in a thin film transistor matrix addressed liquid crystal display. The

cited portion of Castleberry, however, again discusses the provision of a corrective voltage level to achieve an approximately constant RMS voltage over a specific period of time. Thus, to the extent that the references can be combined as asserted by the Examiner, the motivation to one of skill in the art would not be to apply an average voltage as claimed in the present invention, but rather to provide a corrective voltage to maintain a constant RMS voltage as taught by Castleberry. Thus, in either case, the present invention would not result and thus a *prima facie* case of obviousness cannot be maintained.

The Examiner next admits that Figure 9 of Inaba et al. teaches that single pulses should be applied during the scan, but asserts that column 7, line 63 through column 8, line 9 disclose that the pulse number of the data signal could be changed depending on given gradation data. A similar argument is made in the following paragraph with respect to applicants' assertion that Inaba et al. does not teach that the data signal contains a plurality of pulses having a constant pulse width.

In both of these instances, it is respectfully submitted that these issues have been thoroughly briefed in applicants' previous response. To summarize, Inaba et al. broadly discloses a number of general teachings with respect to "known driving methods" but fails to disclose specific features of the present invention, and specifically the application of a plurality of pulses during a predetermined period in which each of the TFTs are addressed by a scan signal.


The *Answer* next asserts that sufficient motivation exists to combine the teachings of Inaba et al. with Kanatani et al. in that both of these references disclose matrix liquid crystal displays and it is well-known in the art to apply a thin film transistor on a liquid crystal display as a switch element to turn on or off a pixel. It should be noted, however, that Inaba et al. is directed to a passive matrix display, while the present invention is directed to an active matrix display having a thin film transistor connected with each pixel electrode. Since the driving method used for a passive matrix display is fundamentally

different from that used for an active matrix display, it is respectfully submitted that one of skill in the art would not have been motivated to modify the references in the manner asserted by the examiner to achieve the present invention.

Furthermore, as stressed in applicants' original Brief, however, motivation requires something more than the mere fact that two references could be combined. In the present rejection, the Examiner has selected piece-meal elements from a variety of different references and simply maintained that it would have been obvious to combine these teachings since each reference generally refers to liquid crystal display technology. Despite the fact that combining these teachings still does not result in the present invention as discussed above, it is respectfully submitted that a *prime facie* case of obviousness requires more than the mere selection of components from various references and the assertion that one of skill in art would combine these components to achieve the claimed invention. There must be some hint or suggestion to cause one of skill in the art to see the desirability of combining the various teachings to achieve the invention. It is respectfully submitted that such motivation cannot be found in the outstanding rejection and thus the rejection is believed to be improper for this further reason.

In view of the above, it is respectfully submitted that the present invention as claimed in is proper condition for allowance and reversal and allowance of the pending claims is respectfully requested.

Respectfully submitted,


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